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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,736	06/20/2003	Matthew Giere	200206801-1	7413

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HEWLETT-PACKARD DEVELOPMENT COMPANY
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EXAMINER

GORDON, RAQUEL YVETTE

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/600,736

Applicant(s)

GIERE ET AL.

Examiner

Raquel Y. Gordon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/20/2003 (this application).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15 and 16 is/are allowed.
- 6) ☒ Claim(s) 1-8, 11 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 9, 10 and 12-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/08/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 8, 11, 17, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Kubuta et al. (US 20030016270A1). Kubuta et al. teach every element of the instant claims including:

1. A fluid ejection device comprising: a first substrate (11) having a first surface, the substrate defining a fluid supply conduit extending through the substrate from the first surface; a stack of thin film layers (42) having a first surface and a second surface, the first surface of the stack of thin film layers being affixed to the first surface of the substrate, the stack of thin film layers including at least one fluid energizing element (20); a second substrate (12, 41, see figures 1 and 8d) having a first surface affixed to the second surface of the stack of thin film layers, the second substrate primarily configured to filter fluid and not primarily to form fluid channels and firing chambers; and, a third substrate positioned over the second substrate and defining, at least in part, multiple fluid channels and multiple firing chambers (20, 56);

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8. A fluid ejection device comprising: a substrate (52) defining a fluid supply conduit (53); a first layer (42) assembly positioned over the substrate, the first layer assembly being primarily configured to provide electrical components including one or more resistors (20); and, a second layer (12, 41, see figures 1 and 8d) assembly positioned over the first layer assembly, the second layer assembly being primarily configured to form a filter and define fluid-feed passageways and firing chambers, wherein the second layer assembly comprises at least one layer primarily configured to filter fluid and not primarily to form a firing chamber (20, and 56);

11. The fluid ejection device of claim 8, wherein the second layer assembly comprises a filter layer positioned adjacent the first layer assembly (12, 41, see figures 1 and 8d);

17. A method comprising: forming at least one thin film layer (42) over a first surface of a substrate (11); forming at least one generally planar elastic filter layer over the at least one thin film layer (12, 41, see figures 1 and 8d); and, forming at least one further layer over the generally elastic layer to form sidewalls which define at least in part multiple firing chambers (see fig 11);

18. The method of claim 17 further comprising, after said acts of forming, forming a fluid supply conduit through the substrate between the first surface and a generally opposing second surface (¶0014+).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-7 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. in view of Chen et al. (US 20040104198A1).

Kubota et al. teaches every element of the instant claims except:

2. The fluid ejection device of claim 1 wherein the second substrate comprises a polymer substrate;
3. The fluid ejection device of claim 1 wherein the second substrate comprises a patternable polymer substrate;
4. The fluid ejection device of claim 1 wherein the second substrate comprises a photo-imagable polymer substrate;
5. The fluid ejection device of claim 1 wherein the third substrate comprises a photo-imagable polymer barrier layer;
6. The fluid ejection device of claim 1 wherein the third substrate comprises a photo-

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imagable polymer substrate configured to perform the function of both a barrier layer and an orifice layer;

7. The fluid ejection device of claim 1 wherein the second and third substrates comprise the same material;

Nevertheless, Chen et al. teach:

2. The fluid ejection device of claim 1 wherein the second substrate comprises a polymer substrate (¶0024);

3. The fluid ejection device of claim 1 wherein the second substrate comprises a patternable polymer substrate (54);

4. The fluid ejection device of claim 1 wherein the second substrate comprises a photo-imagable polymer substrate (100).

Further, it would have been obvious to one of ordinary skill in the the art at the time the invention was made, the photo-imageable polymer orifice layer 100 was configured to also be a barrier layer since it overlays the conductive layers to prevent diffusion (94, (¶(¶0023-0025)). Hence, the following claimed limitations would have been obvious to one of ordinary skill in the art at the time the invention was made:

5. The fluid ejection device of claim 1 wherein the third substrate comprises a photo-imagable polymer barrier layer (100, 94, (¶(¶0023-0025);
6. The fluid ejection device of claim 1 wherein the third substrate comprises a photo-imagable polymer substrate configured to perform the function of both a barrier layer and an orifice layer (100, 94, (¶(¶0023-0025)
7. The fluid ejection device of claim 1 wherein the second and third substrates comprise the same material (100, 94, (¶(¶0023-0025).

Further, with respect to claim 19, Kubota et al. teach:

19. A method comprising: forming a first layer assembly (12) over a first surface of a substrate wherein the first layer assembly forms one or more electrical traces (16 and 17); forming a second layer (11) assembly over the first layer assembly, and at least one additional layer formed over the first layer which forms at least a portion of sidewalls which define multiple firing channels (56, 20).

However, Kubota et al. do not teach:

wherein the first layer assembly comprises a first layer configured to filter contaminants from a fluid and not to form electrical traces.

Nevertheless, Chen et al. teach:

wherein the first layer assembly comprises a first layer configured to filter contaminants from a fluid and not to form electrical traces (¶(0024).

Further, with respect to claim 20, Kubota et al. does not teach:

20. The method of claim 19, wherein said forming a first layer of the second layer assembly comprises forming a first layer which enhances adhesion of the first layer assembly to the at least one additional layer of the second layer assembly.

Nevertheless, Chen et al. teach:

20. The method of claim 19, wherein said forming a first layer of the second layer assembly comprises forming a first layer which enhances adhesion of the first layer assembly to the at least one additional layer of the second layer assembly (69, 94, and figs 5 and 6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kubota et al. by the aforementioned teachings of Chen et al. for the purpose of providing optimal fluid ejection, as taught by Chen et al.

Allowable Subject Matter

Claims 15 and 16 are allowed.

Claims 9, 10, and 12-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter. The following claimed combinations were not found in the prior art of record:

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9. The fluid ejection device of claim 8, wherein the at least one layer of the second layer assembly has a thickness of no more than about 20 percent of a thickness of a layer which forms the firing chamber;

10. The fluid ejection device of claim 8, wherein the first layer assembly comprises multiple thin-film layers;

12. The fluid ejection device of claim 8, wherein the second layer assembly comprises at least three layers.

13. A fluid ejection device comprising: a substrate having a first surface and a second surface, the substrate defining a fluid supply conduit between the first surface and the second surface; and, a generally elastic filter layer formed over the first surface, wherein the filter layer does not form sidewalls defining a fluid channel of the fluid ejection device.

14. The fluid ejection device of claim 8, wherein the fluid channel is configured to supply fluid to a firing chamber.

15. A fluid ejection device comprising: a substrate defining a fluid supply conduit; a generally elastic filter layer formed over the substrate in fluid receiving relation with the fluid supply conduit, the filter layer having a thickness; and, an additional layer formed

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over the filter layer and having a thickness, wherein multiple fluid channels are formed in the additional layer and wherein the thickness of the additional layer is at least four times the thickness of the filter layer.

16. The fluid ejection device of claim 15, wherein the generally elastic filter layer comprises a polymer.

Contact Information

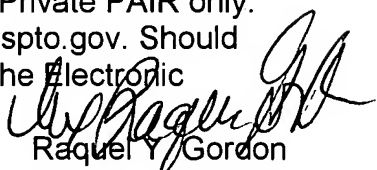
Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Raquel Y. Gordon, whose telephone number is (571) 272-2145. The Examiner can normally be reached on M Tu Th and F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. A fax number is available upon request.

Any inquiry of a general nature or relating to the status of this application or proceeding may be directed to the Examiner or Supervisor.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Raquel Y. Gordon
Primary Examiner
Art Unit 2853
December 9, 2004

**RAQUEL GORDON
PRIMARY EXAMINER**